

Discussion.—Harry E. Alderson, San Francisco: The condition of this patient speaks for itself; it is a clear-cut case of leprosy and I think a very interesting one. In connection with the treatment of this disease I will mention that this summer I saw some interesting culture work in Honolulu by Brinkerhoff, Currie and Holman. These gentlemen have done an immense amount of work and have been successful in growing the lepra bacillus in pure culture. They now have it in the tenth generation. The next step will be the production of a bacillary emulsion for therapeutic purposes. They found that cases which had been treated with chaulmoogra oil for a while were not favorable ones from which to get material for inoculating tubes. I would like to ask Dr. Mead what treatment his patient has had.

G. W. McCoy, San Francisco: In regard to the subject of recent advances of our knowledge of leprosy, I am not sure that we are justified in speaking of actual progress. I had occasion a month or more ago to look up the literature of the subject, and I found that about a year and a half ago Clegg succeeded in cultivating an acid-fast bacillus from the spleen of the lepers who had died. He got the growth of the organism believed to be the leprosy bacillus by starting his cultures on a medium on which ameba were growing in symbiosis with the cholera vibrio. The mixed culture was exposed to a temperature of 55° to 60° C. and in this way the amebae and the cholera vibrios were killed off and a pure culture of the leprosy bacillus left. According to Clegg's work, it is surprisingly easy to cultivate the leprosy bacillus after it gets started. This work of Clegg's has been confirmed by scientists at the Leprosy Investigation Station at Honolulu. A man in New Orleans, whose name has slipped my mind, has gone over the same ground and has secured similar results. In reading the various reports one is left in some doubt as to whether all of these investigators have been dealing with the same organism. An interesting point is that Clegg has claimed that he produced leprosy-like lesions in guinea pigs. This is a remarkable thing, because practically all laboratory animals have resisted inoculation with leprosy. A Japanese worker claims to have produced the disease in dancing mice. He has carried it through several generations of these mice. His work indicates that it is very easy to produce the disease in these little rodents. If the test of time shows all of this work to have been properly controlled, we are no doubt on the eve of a very material advance in the treatment of leprosy.

Dudley Tait, San Francisco: I have followed the work done by Duval of Tulane University, who not only repeated Clegg's experiments, but went very much further. Clegg succeeded in growing the lepra bacillus in symbiosis with ameba, colon or typhoid. Duval obtained pure cultures of Hansen's bacillus on the banana, smeared with a 1% solution of cystein in agar. Duval's article in the current issue of the Journal of Experimental Medicine contains some beautiful illustrations of experimental leprosy lesions in dancing Japanese mice. I would like to hear from Dr. Mead what percentage of his leprosy colony gave a positive Wasserman reaction. This point is still unsettled among syphilographers, it being apparently admitted that the further one gets away from the tuberculous type, the more frequently is the Wasserman found to be positive.

W. C. Alvarez, San Francisco: The diagnosis of these cases is sometimes very difficult when the only lesion to be found is a small pigmented area, and there are no tubercles. If a small piece of the affected skin be lifted up, snipped off, and then ground up in a small mortar with a drop of salt solution, the bacilli can generally be found in the sediment. This is the method long used in Hawaii for confirming the diagnosis in cases to be sent to Molokai.

Louis D. Mead, San Francisco: Answering Dr. Tait's question in regard to the Wasserman reaction:

in two other cases we found a positive reaction in one and a negative in the other; thus far only three have been made. This patient has gained about 50 pounds in three months, has gained power in his legs and is on the mend. This is a pure type of the anesthetic form of leprosy, but most of these cases are the mixed type, i. e., the anesthetic form and the tubercular form.

October 11, 1910.

Presentation of a Case.

By WM. C. VOORSANGER, M. D., San Francisco.

I am presenting this case before you to-night because it is one of rather unusual interest. This patient has a very advanced tuberculosis of both lungs, and in connection with this a condition of the tongue that can undoubtedly be diagnosed as tuberculous ulcers. This condition is a very rare one outside of large centers where there are such great numbers of cases seen. The patient's family history is negative. Three years ago he was taken ill, had malarial fever which kept him in bed for three weeks. At that time he began to cough and had a bad cold on his chest and since then he has gone down hill slowly. About a year and one-half ago he noticed a small growth on the tongue, which gradually spread. Now there are two large ulcers, one on the left side of the tongue with sharp edges, infiltrated; the ulcer on the other side is a smaller one, and to-night he has called my attention to another one at the back of the tongue, which is just making its appearance. To my mind this is typically tuberculous; there are only two other things which it possibly could be and they are syphilis and epithelioma or carcinoma. We can exclude epithelioma, as it did not start as epithelioma usually starts; there are but a few small glands in the deep cervical region in back, the tongue is not fixed and has not developed enough in the past year and a half for carcinoma. Lues can be ruled out; it did not start as a syphilitic ulcer would. The man gives the history of having taken potassium iodid, in Texas, and it made absolutely no impression upon this condition. Sections have been made and tubercle bacilli have been found in large numbers in the sputum. I believe the case to be unquestionably tuberculosis of the tongue.

The Menace of Tropical Diseases to California.

By HERBERT GUNN, M. D., San Francisco.

Read at the meeting of Oct. 4th, 1910.

The importance of tropical medicine is rapidly becoming appreciated throughout the United States and where, only a few years ago, only an occasional worker could be found interested in the subject, now there are many. The subject appears in the curricula of many of the medical colleges, some of which have established departments of tropical medicine. The result of this growing interest is apparent in the increased number of tropical ailments being recognized in all parts of the country.

No state in the Union is more vitally affected by the group of diseases generally known as tropical diseases than California. Our intimate commercial intercourse with many tropical regions furnishes an abundance of diseases peculiar to those countries. Upon the completion of the Panama Canal our increased traffic on the Pacific will give rise to new and serious problems in the prevention of the dissemination of new diseases in the country. The climatic conditions here in California are in certain parts of the state quite favorable to the development of tropical diseases, so that we have no reason for believing that if introduced they will not flourish.

Several diseases have already gained a foothold: malaria, bubonic plague, amebic dysentery and probably hookworm disease.

Sources of Infection.

California has undoubtedly been receiving cases

of various diseases for many years from China, Japan and Central and South America, but since the acquisition of our tropical possessions, the supply has been greatly augmented by returned soldiers and civilians. One of the greatest known sources of infection for certain diseases during the past seven or eight years has been the Hawaiian Islands. Although these islands have usually been considered quite free from most tropical diseases except leprosy, they have imported enough during the last decade to make them a serious focus for the spread of certain diseases. Their mistake was in the importation of thousands of Porto Ricans to work the sugar plantations.

Five years ago the writer demonstrated that over fifty per cent of these people were affected with hookworm disease, which they had contracted in Porto Rico. These conclusions were reached after the examination of over 100 Porto Ricans who had taken up residence in California after leaving the Hawaiian Islands.

Within the past year several cases of this disease came under observation which were undoubtedly contracted in the Hawaiian Islands. While considerable sums have been expended by the Federal Government to stamp out this disease in Porto Rico, it has been gaining a foothold in Hawaii; by the time millions of dollars have been expended in the South to eradicate hookworm disease, it will probably be found to have gained a strong foothold in California. Scattered throughout California to-day there are hundreds of cases and more are constantly arriving.

In San Francisco there is quite a colony of people affected with hookworm disease. In the cities, on account of the sewerage, there is practically no danger of the disease being spread, but in rural districts the danger is great. The soil and water supplies being contaminated, man is infected either by the entrance of the parasite through the skin or by ingestion of infected material. Within the past year several cases of this disease have been reported as originating in this state. The most important of these, occurring in a mine in Amador County, was described by Dr. F. P. Sprague. Conditions in mines are often ideal for the propagation of the hookworm, and once established it is very difficult to eradicate. Vast sums were expended in the Westphalian mines before it could be controlled, but thus far all efforts to absolutely stamp out the infection have not availed. The number of cases has been greatly reduced and the severity of these lessened by early treatment. The magnitude of the task may be appreciated when it is stated that at one time there were 25,000 cases in these mines.

It can readily be appreciated that the infection of the Hawaiian Islands and California with this disease is a matter of considerable importance; yet, so far as is known, absolutely nothing has been done to prevent the disease gaining a foothold in this state. Many of the Porto Ricans harbor, in addition, the *filaria sanguinis hominis*, a small blood worm which is transmitted by the mosquito. About a dozen cases of this infection have been observed by the writer in San Francisco, also several cases of elephantiasis, a disease believed by many to result from filarial infection. It was estimated that about ten per cent of the Porto Ricans are infected with this parasite, so that at least a couple of hundred infected individuals are scattered throughout the state. Filarial disease is found in most tropical countries so that, if sought, it doubtless could be demonstrated among other races here.

Dr. Wellman of Oakland has demonstrated that the mosquitoes in that locality will not carry the parasite, but, of course, we do not know what the result would be in other parts of the state.

A rarer infection, also found in the Porto Ricans, is the *schistosomum hematobium*, or *schistosomum mansoni* (Bilharzia disease), a worm inhabiting the veins and producing dysenteric symptoms. Three

cases came under the writer's observation in San Francisco which are, as far as is known, the only ones reported in the United States.

Another species of this parasite (very prevalent in Egypt) affecting the bladder, has been observed here on several occasions. A third species called *S. Cattoi* or *S. Japonicum* could doubtless be found if sought among our Japanese or Chinese colonies, as it is quite prevalent in parts of Japan and China. The life history and mode of development of these parasites is not understood, so we do not know how much danger there is of the disease being disseminated. Amebic dysentery, one of the greatest scourges of the tropics, has already gained a foothold in this state and cases developing here are occasionally encountered. It is impossible to trace the origin of this infection in California, but unquestionably the disease has been greatly disseminated by infected persons returning from the Philippines and taking up residence in the rural districts. In several parts of this state, amebae have been occasionally demonstrated in water supplies and in washings from vegetables such as lettuce, but further work is necessary before it can be definitely stated that these were disease bearing. Bubonic plague, which has taxed our efforts so greatly for the past few years, has gained a firm foothold in California in the ground squirrel and isolated cases may be expected to develop at any time. However, with the present efficient Federal inspection it is not probable that any serious outbreak will occur. The eradication of plague in San Francisco affords one of the most striking examples of the brilliant results of modern sanitation. Malaria, which is so prevalent in certain parts of this state, should for several reasons be looked upon from a tropical standpoint. Filariasis, which we have at hand, and yellow fever, which we may have at hand with the advent of the Panama Canal, are, like malaria, mosquito-borne diseases and may, under favorable conditions, thrive here. In certain localities in the tropics malaria of the estivoautumnal variety at times develops most malignant characteristics. The parasite found in these pernicious cases appears the same as the ordinary estivoautumnal parasite found in the milder fevers, but as the pernicious cases are usually confined to certain localities and do not occur in many places where the estivoautumnal parasite is prevalent, it would seem possible that there may be some difference in the parasite. If this were the case it might be possible for the parasite of the pernicious variety to become established in our malarial districts. The writer has seen three cases of pernicious malaria in San Francisco, one of which died. One was from New Orleans and two from the Philippines. Of three human cases of lung fluke disease observed in the United States, two occurred in California—one found by Dr. Cooper and one by Dr. Wellman.

This disease is quite prevalent in certain parts of China and Japan, and doubtless many cases here have been overlooked, it usually being mistaken for tuberculosis. The life history of the parasite is not understood. Cases of gangosa described by Dr. Geiger of the United States Navy, leprosy, beriberi, liver fluke disease, sprue and diarrheas produced by the *strongyloides intestinalis* and *balantidium coli*, complete a list of tropical diseases observed in California, which I am quite sure could not be duplicated in any other state in the Union.

None of the diseases considered in this paper except leprosy, plague and yellow fever come under the regulations of the quarantine service, so there is nothing to prevent infected persons going and coming where they please. Of course, in some of the diseases it would be very difficult to know what to do with them if they could be regulated, but in others the measures that should be taken are perfectly understood. The eradication of yellow fever in Havana and in the canal zone shows what attention to the mosquito may accomplish.

Malaria and filariasis may be controlled in the same way. Attention to the rat cleared San Francisco of the plague. Other diseases such as amebic dysentery and hookworm disease are controlled by preventing contamination of the soil and curing the cases. In hookworm disease a cure can be accomplished in a few days, i. e., the parasite can be destroyed; so by treating all cases and guarding against reinfection the disease would theoretically soon be stamped out of a community. However, the long life of the embryo, over a year in the laboratory, makes its eradication from the soil a very difficult problem, as has been demonstrated, especially in the mines of Westphalia and Cornwall.

In this day of preventive medicine, it would seem that measures should be taken to control, as far as possible, the influx of persons infected with these diseases. Up to the present time nothing has been done. A Chinese, a Japanese, a Hindu or a Porto Rican has been permitted to introduce the diseases peculiar to his country without a question.

Discussion.—P. A. Surgeon M. W. Glover, San Francisco: There seems to be some little confusion as to the exact duties of the different marine hospital officers here, and I will make that clear first. In the first place, I am not the quarantine officer. That station is also on Angel Island, it is true, but I am attached to the Immigration Service, for the purpose of examining aliens coming into the country, to determine whether they have any contagious disease, are insane, idiots or imbeciles or unable to earn a living from any physical cause. It is a very difficult matter to carry out this inspection so thoroughly as to exclude all of the tropical diseases that Dr. Gunn has been speaking of. There are some of them that are classed as dangerous contagious diseases or loathsome contagious diseases that are sufficient to deport the alien outright, except in certain cases where the alien has the right to land irrespective of his physical condition, such as a native or the sons of a native. A Chinaman who is a native goes to China and marries; maybe ten or twelve years later his son will come over and must necessarily be landed on proper identification. Those cases we cannot do anything with, they are landed immediately; that question has been thrashed out in the courts and there is nothing to do but to land them. The poor benighted Hindu has been pretty well kept out heretofore; regardless of the hookworm, every opportunity has been taken to keep him out. Before I began to examine the stools of these people they were certified for debility, poor physique or anemia and they were sent back. Now I have some good scientific reason for certifying them and my conscience is a little clearer. Many cases of hookworm disease must have entered the country, because since I have been looking for the hookworm ova I find it in cases that present no clinical evidence of having the disease. I have found some cases of amebic dysentery and several cases of malaria from Mexico and Panama, going to the Orient, but no effort is usually made to stop this class of case going out of the United States. I was much interested in the paper just read by Dr. Gunn, and also in the case of leprosy exhibited by Dr. Mead. Hereafter I will keep my eyes open for leprosy, though such cases are supposed to be barred by the quarantine officers.

Herbert Gunn, San Francisco: Hookworm is a disease that can be very readily controlled because it can be cured in a few treatments. It seems to me that it is an awful thing to allow a state to become infected with a disease which is so hard to eradicate from the soil when it once gains a foothold. This state in the last five years has been overrun with cases which were allowed to scatter throughout the farming regions and thus have probably infected the country.

A Case of Continued Fever.

By W. C. ALVAREZ, M. D., San Francisco.

Read at the meeting of Oct. 4th, 1910.

Nothing will teach a man so much, or keep him so humble, as the frequent performance of autopsies. He will become all the humbler if the mistakes and oversights occur in his exhibition cases like the one I am about to describe. Such accidents must have happened even to the Father of Medicine, judging from the first of his famous aphorisms, "Experience is fallacious and judgment difficult."

T. H., aged 53, a laborer, came to Cooper College Clinic September 6, 1909, complaining of a dull, dragging pain in the right lumbar region, so severe as to keep him from any rest or sleep.

His past history was negative except for a little malaria. He never had anything like rheumatism, and never had any joint pains in this or any other illness. He did not remember ever having any symptoms referable to the heart, and that organ seemingly had always been competent. There was no history of any lung trouble.

He had been feeling badly and suffering some pain since the first of the year, and had to quit work two months previously. A significant point was that the pain was relieved by sitting erect. No note was made as to any tenderness of the spine at the time, though it must have been looked for. There was marked rigidity of the lumbar vertebrae. He perspired freely on slight exertion. The heart sounds are described as forcible and clear. The pain later moved around into the back. Under pot. iod., sod. sal., colchicum and aspirin he seemed to improve, and was discharged November 29 as better.

A month later he was admitted to the polyclinic service at the C. and C. Hospital, much emaciated, and complaining of the same severe pain, now in the right hypochondrium, sometimes severest over the gall-bladder and sometimes over the appendix. This led to his transference to the surgical service for operation. They could feel no mass in the abdomen, and, as there was very little resistance, they very discreetly sent him back to the medical side for a diagnosis.

There the following notes were taken. The pain has sometimes shifted over to the left side for a while. It has never radiated down the ureter. There has been no precordial pain or symptoms referable to the heart. He has lost sixty pounds in weight in the last year. There is no mention of pulse or temperature in the Cooper Clinic record, and the patient states that he began to notice fever shortly before entering the hospital. During the five months of his stay there, he ran a septic temperature from 103° to 99° in the mornings, without intermissions.

The face is red with marked cyanosis of the nose and ears. The hands are also very cyanotic. There is slight dyspnea and respiration is mainly thoracic. No definite pathologic changes in the lungs. The heart is slightly enlarged to the left, a systolic thrill can be felt and there is a double mitral murmur. In the abdomen, a distended cecum can be seen, which disappears under palpation. There is slight rigidity of the muscles on the right side, and a little tenderness over the appendix. There is no tenderness over the gall bladder where the pain is now localized. The spleen and liver are not enlarged, and there is no mass to be felt anywhere. There is absolutely no tenderness of the spine on vigorous percussion and no disturbance of sensation can be demonstrated. The reflexes are slightly exaggerated in the lower extremity.

Counts made in January showed a leukocytosis of 11,000 to 14,000.

Dr. Schmoll made a diagnosis of chronic ulcerative endocarditis with an embolus somewhere in the corresponding spinal segment to account for the pain. This pain, by the way, disappeared suddenly nearly